

CLAIMS

1. A method for producing reduced iron, comprising a feedstock-feeding step of feeding a feedstock containing a carbonaceous reductant and an iron oxide-containing material into a rotary hearth furnace, a heating/reducing step of heating the feedstock to reduce iron oxide contained in the feedstock into reduced iron, a melting step of melting the reduced iron, a cooling step of cooling the molten reduced iron, and a discharging step of discharging the cooled reduced iron, these steps being performed in that order in the direction that a hearth is moved, wherein the furnace includes flow rate-controlling partitions, arranged therein, for controlling the flow of furnace gas and the furnace gas in the cooling step is allowed to flow in the direction of the movement of the hearth using the flow rate-controlling partitions.

2. A method for producing reduced iron, comprising a feedstock-feeding step of feeding a feedstock containing a carbonaceous reductant and an iron oxide-containing material into a rotary hearth furnace, a heating/reducing step of heating the feedstock to reduce iron oxide contained in the feedstock into reduced iron, a melting step of melting the reduced iron, a cooling step of cooling the molten reduced

iron, and a discharging step of discharging the cooled reduced iron, these steps being performed in that order in the direction that a hearth is moved, wherein the furnace includes flow rate-controlling partitions, arranged therein, for controlling the flow of furnace gas and the pressure of the furnace gas in the cooling step is maintained higher than that of the furnace gas in other steps using the flow rate-controlling partitions.

3. The method according to Claim 1 or 2, wherein the heating/reducing step is partitioned into at least two zones with one of the flow rate-controlling partitions, one of the zones that is located upstream of the other one in the direction of the movement of the hearth has a furnace gas outlet, and the flow of the furnace gas is controlled by discharging the furnace gas from the furnace gas outlet.

4. The method according to Claim 3, wherein the flow of the furnace gas is controlled in such a manner that the heating/reducing step is partitioned into at least three zones by providing one of the flow rate-controlling partitions at a position that is located upstream of the furnace gas outlet in the direction of the movement of the hearth.

5. The method according to Claim 1 or 2, wherein at least one of the partitions has one or more perforations and/or is vertically movable.

6. The method according to Claim 5, wherein the flow of the furnace gas is controlled by varying the aperture of the one or more perforations.

7. The method according to Claim 3, wherein at least one of the partitions has one or more perforations and/or is vertically movable.

8. The method according to Claim 7, wherein the flow of the furnace gas is controlled by varying the aperture of the one or more perforations.

9. The method according to Claim 4, wherein at least one of the partitions has one or more perforations and/or is vertically movable.

10. The method according to Claim 9, wherein the flow of the furnace gas is controlled by varying the aperture of the one or more perforations.

11. An apparatus for producing reduced iron, comprising a

rotary hearth furnace for performing a feedstock-feeding step of feeding a feedstock containing a carbonaceous reductant and an iron oxide-containing material into a rotary hearth furnace, a heating/reducing step of heating the feedstock to reduce iron oxide contained in the feedstock into reduced iron, a melting step of melting the reduced iron, a cooling step of cooling the molten reduced iron, and a discharging step of discharging the cooled reduced iron, these steps being performed in that order in the direction that a hearth is moved, wherein the rotary hearth furnace includes a vertically movable flow rate-controlling partition for controlling the flow of furnace gas and/or a flow rate-controlling partition having one or more perforations for controlling the flow rate of the furnace gas, these partitions being arranged in the rotary hearth furnace.

12. The apparatus according to Claim 11, wherein the heating/reducing step is partitioned into at least two zones with one of the flow rate-controlling partitions and one of the zones that is located upstream of the other one in the direction of the movement of the hearth has a furnace gas outlet.

13. The apparatus according to Claim 12, wherein the

heating/reducing step is partitioned into at least three zones by providing one of the flow rate-controlling partitions at a position that is located upstream of the furnace gas outlet in the direction of the movement of the hearth.

14. The apparatus according to any one of Claims 11 to 13, wherein the flow rate-controlling partition having the one or more perforations has an adjuster for adjusting the aperture of the one or more perforations.